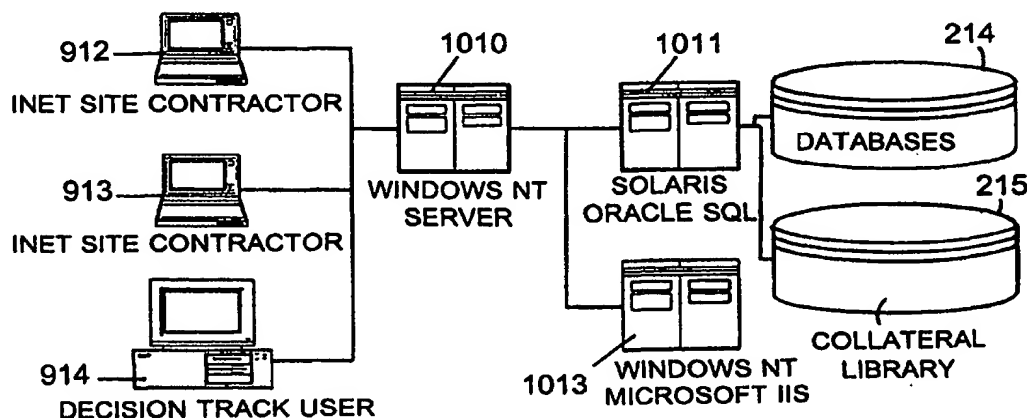




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(54) Title: NETWORK CONTACT TRACKING SYSTEM



(57) Abstract

In the present invention a method and apparatus is provided for information gathering and dissemination on a computer network, such as the Internet or a private network. Information dissemination is based on a profile of information compiled on a client accessing the network. The profile is referenced to create customized communications. The communication may be transmitted via standard web and e-mail interfaces, fax, conventional mail, or voice mail. The invention is particularly useful in gathering sales and marketing data from a web site visitor's browsing behavior or purchasing behavior and from user provided input. As a user's behavior is recorded, the invention also allow for customized messages to be selected and displayed on the web site in response to such behavior. Dynamic and unattended customization of web pages, e-mail or other messages (i.e., by varying the content thereof) is possible. The invention has application a wide range of contexts including business, scholastic and professional (e.g. medicine) environments where customized interactive information exchange with an individual user is desired.

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NETWORK CONTACT TRACKING SYSTEMCross Reference To Related Applications

5 This application claims priority to U.S.
Provisional Application No. 60/095,652, filed August 7,
1998.

Background of the Invention

 The present invention relates to interaction with
10 customers for internet commerce. In particular, this
invention relates to delivery of a sequence of messages
to specific individuals in a time relative fashion.
Determination of whether a customer receives a message is
based upon a databased history of prior transactions with
15 that customer.

 A mechanism is described which implements a
sequential or non-sequential, time-relative delivery of
human readable messages based on specific input criteria.
Different sets of criteria are maintained by the system
20 concurrently. Each unique set of criteria is called a
decision track. The input criteria for a decision track
is continually evaluated to yield a continuous stream of
contacts to deliver messages.

 By way of background access to distributed
25 networks such as the Internet has increased greatly in
recent years and challenged commerce to use the Internet
advantageously. Commercial Inet sites (e.g. an Internet
or an Intranet site) have been added to networks to
permit direct marketing of goods and services in an
30 electronic environment. A great expenditure of time and
effort has been invested to create a myriad of resources
available to Inet browsers. As a means to benefit from
the Inet forum, it is useful to have tools to interact
with those browsing the Inet and track their contacts to

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a particular Inet-site. Current tools available for interacting with such Inet clients, although useful, are primitive and limited in their capabilities and specifically do not permit time sequenced communication or real-time interaction which greatly facilitates commerce on the Internet.

Purveyors of the Internet desire interactions that further emulate a real life commercial experience. Virtual storefront owners, corporate home pages, online catalogue vendors, and other Inet-site owners, would find it useful to duplicate the real life experience of recognizing a repeat customer or visitor and remembering details concerning that person's previous visits. Internet interactions that can be tailored to a profile of a visitor to a web site would thus be advantageous.

It would also be useful to implement a vehicle to deliver a sequence of communications to a specific individual based upon profile knowledge both previously obtained and immediately determined during a web site visit. Further it would be useful to transmit such communications on a time schedule relative to an event. In order to determine delivery of a message, information on an individual, who may be anonymous, must be maintained. This information may include by way of example, where the individual can be contacted, what interests the individual may have, what sequence of messages has already been delivered, what format to send a message in, when is a favored time of day to reach that individual, and other useful information. To date, no solution is available that can provide such information and implement communication in a real time or event sequenced fashion.

Prior Inet database tools allow gathering of a group of addresses and delivery of a message to the entire group through batch mode processing. Batch mode

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processing performs a given set of functions on groups of data referred to as batches. Typically data is collected and stored until a scheduled processing time. At the scheduled time, data is removed from a collection device and transferred to a processing device in batches. The processing device then performs a preprogrammed function in a backroom environment. Follow up to the collected data is thus subject to the timing of the batch processing.

10 Batch mode processing only allows follow up to a message after some period of time has elapsed. A new list of individuals may be gathered or the same list of individuals may be used to send another message. The problem that remains with this contact methodology is
15 that it does not execute in real time, or even a time sequence queuing from an individual contact to a web site.

 A system is needed that will deliver a message or a sequence of messages or perform some other useful
20 action related to an individual's contact with a web site as soon as that individual client has been determined to have met predetermined criteria.

Summary of the Invention

 Accordingly, an article of manufacture, a method
25 and a system are provided for tracking Internet and/or Intranet contacts and automatically responding to such contacts in a real time environment with customized communications. The invention allows for a sequence of personalized messages to be sent to an individual
30 contacting a web site on a real time basis and for personal messages to continue to be sent on a time schedule queuing off of a web site contact. A contact comprises access to an electronic interface such as a web site. A client is a person making such contact, or

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causing a node of a network to make such contact. When a server, or system of servers hosting a Web site is contacted, useful information pertaining to, for example, a client's interests, browsing habits, purchasing history, time of contact, lead source of a contact, and a name and address if available, is gathered to create a contact profile database relating to the client. Further interactions with that client are customized in real time, according to the profile of information gathered in previous interactions including those interactions immediately preceding. In this way, activities can be directed towards a specific client in a time relative sequence. Information is disseminated to a specific client according to the information captured in that client's profile.

Disseminated information takes the form of customized communication. Communications may, for example, be modified contents of an Inet-site, e-mail, fax, voice mail, or U.S. mail. All communications can be part of a time sequence triggered by events in real time. With the use of real time customization, communications directed towards a client are intelligently structured according to accumulated information in the contact profile database and the occurrence of events. The use of a relative time line allows communications to take place on a timetable specifically tailored to the actions taken by a client.

A client profile is typically a database comprising related tables of data. The database may be updated via computer program code, or via direct input such as by a user of the invention, or a client directly supplying information. The database is stored in a medium allowing the data to be queried or retrieved.

For the purposes of this disclosure an Internet can refer to, for example, a network comprising computers

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exceeding the boundaries of a private network. An Intranet can refer to, for example, computers within a private network. An Inet can refer to an Internet and/or an Intranet adhering to an internet protocol or similar protocol. An Inet-site is, for example, a site available on either an Internet or an Intranet. A network, for example, can have a computer acting as a server and a computer acting as a client. A contact can, for example, be an access to an electronic interface such as a web site, or other contents of a stored memory such as a hard drive or dynamic random access memory of a server. A client can be a person, a node operator, or broadly, a machine or electronic device making such contact, or causing a node of a network to make such a contact. Real time is meant to be read broadly to signify on a basis timely to or in relation to an individual event.

Other advantages and features of the present invention will become apparent from the following description, including the drawings and the claims.

20 Brief Description of the Drawing

FIG. 1 is a computer hardware diagram.

FIG. 2 is a computer network diagram.

FIG. 3 illustrates an embodiment of a decision track data structure.

25 FIG. 4 illustrates the flow of a real time response mechanism.

FIG. 5 illustrates the flow of querying a contact profile database.

FIG. 6 illustrates the flow of continual evaluation during decision track execution.

30 FIG. 7 illustrates the flow of an e-mail parsing routine.

FIG. 8 illustrates a data structure collateral management

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FIG. 9 illustrates a small office configuration supporting this invention.

FIG. 10 illustrates a UNIX™-Based Database configuration.

5 FIG. 11 illustrates a flow of querying database records comprising information gathered from an Inet interface.

FIG. 12 illustrates a screen with a circumscribed area.

10 FIG. 13 illustrates multiple icons on a screen.

Description of the Preferred Embodiments

Fig. 1 depicts physical resources of a computer system 100. The computer 100 has a central processor 101 connected to a processor host bus 102 over which it provides data, address and control signals. The processors 101 may be any conventional general purpose single- or multi-chip microprocessor such as a Pentium® processor, a Pentium® Pro processor, a Pentium II® processor, a MIPS® processor, a Power PC® processor or an ALPHA® processor. In addition, the processor 101 may be any conventional special purpose microprocessor such as a digital signal processor or a graphics processor. The microprocessor 101 has conventional address, data, and control lines coupling it to a processor host bus 102.

25 The computer 100 includes a system controller 103 having an integrated RAM memory controller 104. The system controller 103 is connected to the host bus 102 and provides an interface to random access memory 105. The system controller 103 also provides host bus to peripheral bus bridging functions. The controller 103 thereby permits signals on the processor host bus 102 to be compatibly exchanged with signals on a primary peripheral bus 110. The peripheral bus 110 may be, for example, a Peripheral Component Interconnect (PCI) bus,

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an Industry Standard Architecture (ISA) bus, or a Micro-Channel bus. Additionally, the controller 103 can provide data buffering and data transfer rate matching between the host bus 102 and peripheral bus 110. The controller 103 thereby allows, for example, a processor 101 having a 64-bit 66 MHz interface and a 533 Mbytes/second data transfer rate to interface to a PCI bus 110 having a data path differing in data path bit width, clock speed, or data transfer rate.

Accessory devices including, for example, a video display controller 112 and network controller 114 can be coupled to the peripheral bus 110. The network controller 114 may be a modem, an Ethernet networking card, a cable modem, or other network access device. The system 100 may also include a secondary peripheral bus 120 coupled to the primary peripheral bus 110 through a bridge controller 111. The secondary peripheral bus 120 can be included in the system 100 to provide additional peripheral device connection points or to connect peripheral devices that are not compatible with the primary peripheral bus 110. For example, in the system 100, the secondary bus 120 may be an ISA bus and the primary bus 110 may be a PCI bus. Such a configuration allows ISA devices to be coupled to the ISA bus 120 and PCI devices to be coupled to the PCI bus 110. The bridge controller 111 can also include a hard disk drive control interface to couple a hard disk 113 to the peripheral bus 110 and a controller to other computer readable medium 150.

The computer 100 also includes non-volatile ROM memory 122 to store basic computer software routines. ROM 122 may include alterable memory, such as EEPROM (Electrically Erasable Programmable Read Only Memory), to store configuration data. For example, EEPROM memory may be used to store hard disk 113 geometry and

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configuration data. BIOS routines 123 are included in ROM 122 and provide basic computer initialization, systems testing, and input/output (I/O) services. For example, BIOS routines 123 may be executed by the

5 processor 101 to process interrupts that occur when the bridge 111 attempts to transfer data from the ISA bus 120 to the host bus 102 via the bridge 111, peripheral bus 110, and system controller 103. The BIOS 123 also includes routines that allow an operating system to be

10 "booted" from the disk 113 or from a server computer using a local area network connection provided by the network adapter 114. The operating system boot operation can occur after the computer 100 is turned on and power-on self-test (POST) routines stored in the BIOS 123

15 complete execution, or when a reset switch is depressed, or following a software-initiated system reset or a software fault. During the boot process, the processor 101 executes BIOS 123 software to access the disk controller 111 or network controller 114 and thereby

20 obtain a high-level operating system. The high-level operating system is, for example, the Microsoft Disk Operating System (DOS)™, Windows 95™, Windows NT™, a UNIX operating system, the Apple Mac OS™ operating system, or other operating system.

25 An operating system may be fully loaded in the RAM memory 105 or may include portions in RAM memory 105, disk drive storage 113, or storage at a network location. For example, the Microsoft Windows 95™ operating system includes some functionality that remains

30 in memory 105 during the use of Windows 95™ and other functionality that is periodically loaded into RAM memory 105 on an as-needed basis from, for example, the disk 113. An operating system, such as Windows 95™ or Windows NT™ provides functionality to control computer

35 peripherals such as devices 112-114, 121, and 124, and to

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execute user applications. User applications may be commercially available software programs such as e2 SalesOffice™ word processing, spreadsheets, computer aided drawing and manufacturing software, scientific
5 software, internet access software and many other types of software. User applications may access computer system peripherals 112-114, 121, and 124 through an application programming interface provided by the operating system and/or may directly interact with
10 underlying computer system 100 hardware.

A collection of computers 100 can serve as components of a computer network. As shown in Fig. 2, a computer network 200 can include a host computer system 210 and client computers 231-233 or other network access
15 devices 234-236. The client computers 231-233 or other network access devices 234-236 can communicate with the host 210 to obtain data stored at the host 210 in database 214 or collateral stored in a collateral library 215. The client computers 231-233 or other network
20 access devices 234-236 can interact with the host computer 210 as if the host was a single entity in the network 200. However, a host 211-213 may include multiple processing and database sub-systems that can be geographically dispersed throughout the network 200. For
25 example, a host 210 may include a single computer server 211 or a tightly coupled cluster 211-213 of computers 100 (Fig. 1) at a first location that access database system 214 or collateral stored in a collateral library 215 at remote locations. Each database system 214 or collateral
30 stored in a collateral library 215 may include additional processing components.

Client computers 231-233 or other network access devices 234-236 can communicate with a host system 210 over, for example, a combination of public switched
35 telephone network dial-up connections and packet network

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interconnections. For example, client computers 231-233 may each include a modem coupled to voiceband telephone line 241-243. To communicate with a host 210, the client computer 231 can establish a data connection with a local terminal server 225 or 226 by dialing a telephone number assigned to the local terminal server 225. Other network access devices 232-233 can connect through dial up, direct cable access or other communications media. A local terminal server 225 or 226 may have both dial-up and packet network interfaces allowing the server 225 or 226 to receive data from client computers 231 or other network access devices 235 and 236, segment the received data into data packet payload segments, add overhead information to the payload segments, and send the resultant data packets over a link 221 to a packet data network 220 for delivery to a host system 210. Terminal servers 225 and 226 may also be referred to as a network service provider's point-of-presence (POP).

The overhead information added to the payload segments include a packet header. A packet header includes a destination address assigned to the host system 210 and a source address assigned to the local terminal server 225. Other overhead information may include information associating the data packet with a specific client 231-233. Similarly, the host system 210 may send data to a client 231-233 by segmenting the data into data packet payload segments, and adding overhead information to send the data packet to a client 231-234 at the terminal server 225. Client computers 234-236 may similarly exchange data with the host 210 over communications links 244-246 to the terminal server 226.

Data packet formats, switching equipment within the packet network 220, and networking protocols used within the network 200 may conform to the transaction control protocol/internet protocol (TCP/IP). In a TCP/IP

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implementation, the host 210, packet network 220, terminal servers 225 and 226 are each assigned a unique internet protocol (IP) network address. TCP/IP switching equipment within the network 220 can direct a TCP/IP
5 packet to the intended recipient 210, 225, or 226 based on the packet's destination IP address. Implementations may use other networking protocols and packet formats.

A vehicle such as a network interface screen 251 comprising an Inet-site, hosted on a server or a system
10 of servers, gathers information via a software program, the information relating to a contact made with the server.

On an initial contact, information is taken from sources such as the Internet Protocol (IP) address of a
15 client or a login screen at the site accessed. It may also be useful to download a cookie to identify a client during subsequent contacts. A "Cookie" sometimes referred to, as a "Magic Cookie" is a short piece of data downloaded to a client's computer and then read back by
20 an Inet-site during subsequent interactions. Typically, this type of identification is accomplished through use of a small text file with information pertaining to a client's access to the originating Inet-site. The text file is sent to reside on the client's computer. The
25 text file is presented to the originating Inet-site by the client's browser and avoids the necessity of repeating information submitted during a previous interaction. Most cookies reside in a computer's random access memory and are erased when a client exits his
30 browser. More permanent cookies are stored on a client's hard drive and referred to as persistent cookies. Cookies can be used to tell a server if a client has visited the Inet-site before.

Information relating to an Inet contact is
35 gathered and stored in a contact profile database 252.

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Actions taken by a client including browsing behavior are databased along with other related information and added to a contact profile. Subsequently, information relating to a client can also be added to the contact profile
5 database 252. Additional information may be input by a user, input by a client via an Inet interface 251, or merged from another data source. Inet screens customized according to the information gathered can then be presented to the client in real time, and other
10 customized forms of communications may also be disseminated.

An unattended mechanism, such as an Inet interface screen 251, can be used for gathering customer information. Inputs may comprise a form to be filled in
15 with information by a client, audit trail information such as page hits, file downloads or other Inet server interactions, such as searches. Information received by contact filled forms can be used to create or update information about a particular client. Audit trail
20 information can be used to perform complex tasks such as notifying users of new versions of a product or performing follow up contacts to obtain additional information. Tasks may be carried out by a user customizable programming mechanism referred to as a
25 decision track.

A contact profile database 252 comprising gathered data can be referenced by a decision track 253 mechanism. Decision Track records 300 can include: a client ID 310, which is a system identifier and uniquely identifies an
30 individual or contact within the system; a decision track ID 311, which is a unique identifier for a sequence of actions to be taken such as the delivery of a message; a starting time 312, which is a time stamp of when a contact is first placed on that decision track; the
35 current step 313, typically one of a plurality of steps

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comprising a decision track 253 such as one message in a sequence of messages; and the last time 314 an action was taken directed toward this particular contact.

Tables may be modified to update customer and
5 contact information. Table management can also include maintaining client contact audit trails. Locally generated contacts, such as phone, fax, e-mail and voice mail, as well as server-generated contacts can be stored. Individual customer records may be marked as private or
10 public. Private records may be maintained locally and not synchronized with other servers. In addition private records may remain visible only to designated users. Changes to public records can be automatically synchronized with other servers in a multiple server
15 environment.

Real time response can be accomplished by continuous gathering of contacts and evaluation of data relating to those contacts as well as evaluation of events that have occurred. Actions can be taken based on
20 these evaluations after which the system is designed to loop back again to contact gathering. This flow is illustrated in FIG. 4.

The contact gathering process 410 collects information from any of the information sources known to
25 the system. In particular sources comprise but are not limited to, a contact profile table, a history table, and any other table comprising a contact profile database. A history table contains transactional history relating to contacts, including but not limited to a list of web
30 pages contacted, a purchase history, downloading activity and other data relating to a contact deemed to be of value to a user of this invention.

Step evaluation 411 compares information in a contact profile database 252 with criteria set forth by a
35 user. A top level query gathers a result set comprising

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contacts meeting a specified criteria. The result set is formed comprising a list of contact IDs that meet the criteria necessary to be placed on a decision track. The decision track 253 is then initialized for the aforesaid
5 result set with each of the records comprising the result set placed on the first step of the initialized decision track. (Fig. 4.)

As the decision track 253 executes, a continual evaluation takes place to monitor the various steps 610
10 for all of the contact records involved in the execution. In addition, event evaluation 412 can take place and be tested against criteria necessary to advance to the next step of a decision track. For example, criteria to advance to the next step of a decision track 253 may be
15 the expiration of a 24-hour period. The 24-hour period constitutes an event. Once an event has taken place, a step evaluation result tests true 611 and contact records waiting on that event advance to a next step of the decision track. When all criteria have been met, an
20 action may be performed 612 as set forth in a step of a decision track.

Typically, contact to an Inet-site is effectuated via a client computer that has been lead sourced from another Inet-site. In this case a lead source 813 may
25 also be added to a contact profile database. A lead source designates the site from which a contact originated. Tracking lead sources can be used to analyze an ad campaign and to quantify referrals from other sites. Information gathering techniques implemented in
30 this invention allow for an accurate accounting of how many leads originating from a specified source eventually convert to a sale or result in some other desirable interaction. Quantifying information relating to a lead source can be useful in determining the value of
35 advertising on that lead source. In addition compiled

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lead source data can be used to compensate a lead source based on an actual number of click throughs, or the number of click throughs that convert to a sale or take some other desired action.

5 Interaction with a client can be based upon information accumulated in a contact profile database. Interaction includes a response to a request made by a client and also proactive communications originating from a host site. Communications can be customized according
10 to pre-established criteria that a user may modify at any time. Clients may be placed in a particular classification and receive specific collateral communications based upon data stored in a contact profile database 252 such as a contact's tracked browsing
15 or purchasing behavior, or other useful information. Classification criterion and a history of collateral receipt may become part of the client profile that is databased. Communications can be disseminated according to classifications in the contact profile database. A
20 user may also make reference to the contact profile database 252 during subsequent interactions with that client, during user initiated communications, or at any other time that such data may be useful.

 Collateral is a communication piece. A collateral
25 library 215 may be stored in a database. Execution of a decision track 253 determines if a client should be sent a collateral piece at a given time. During execution of a decision track 253, contacts are queried to meet predetermined criteria 510. If predetermined criteria
30 are met, a corresponding action may be taken such as initializing result set to a first step 511. For example, a corresponding action may cause a designated piece of collateral to be sent to a client. A specific example of a collateral is sending a message two weeks
35 before a holiday, such as Mother's Day, to all customers

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who bought on last year's Mother's Day, and sending out "Thank you" messages for purchases followed up by promotional messages after a predefined period.

A collateral library 215 allows for consistency in appearance that can create a theme throughout the collateral pieces. This is useful in creating a corporate identity. Collateral pieces 825 with similar features are more likely to be associated with an originating entity. A databased library of collateral may act as templates to be modified according to information in a client's profile. Collateral can be stored in a collateral database 255 using an index of labels 826 or binder information. Associated with the label will be documents having equivalent content but created in different format types. Types 824 include for example, e-mail, HTML, RTF, text, fax, white paper, brochure, telemarketing materials, voice mail, postal mail, as well as other appropriate types. Due to the nature of different collateral types 824, it is sometimes preferable to database locations of links to collateral pieces 825 instead of the collateral piece 825 itself. In addition, for electronic collateral, a graphic may be linked via a uniform resource locator (URL). External editors such as commercial word processors and graphics packages may be used to create and edit collateral. Centralized collateral management provides a mechanism for storing multiple collateral objects of different types under a common label.

Various modes of delivering collateral require different interfaces. Pager configuration involves specifying a phone number to dial and a sequence to specify the PIN number and transmit a message. Internet-based pager services can also be supported. Fax interface configuration involves specifying a fax device to use and a mechanism for delivering the phone number of

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the target fax machine. Voice mail interface includes specifying a voice mail device and collateral for messages as well as telephone numbers and time of day to place calls.

5 One data structure that can be used for
· accomplishing centralized collateral management is
· illustrated in Fig. 8. Centralized collateral management
can be accomplished by organizing the collateral into
collateral binders 820 of various labels 826 each label
10 826 indicating a content 823 of a collateral with an ID
822, and collateral type 824.

The client's profile in the contact profile
database 252 will determine the format type of the
collateral to be sent to the client. Each contact can
15 have a preferred contact type 812 stored in the contact
profile database. The contact type can be determined
from a client's browser, contact input into a form, types
of documents requested by a client or other information
gathered during client interaction. If a decision track
20 253 determines that an action should take place relating
to a particular contact, the contact profile database 252
is referenced to determine the preferred contact type for
that particular contact.

Collateral can also be displayed in apportioned
25 areas of an Inet-site screen 251. For example, the Inet
screen 251 can have one or more geographic areas
circumscribed. Each circumscribed or apportioned area
1201 can be capable of displaying a customized content.
As information on a client is gathered, or information is
30 referenced from a contact profile database 252, the
contents of a circumscribed area may be designated to
contain a specific collateral piece according to that
information. In a preferred embodiment a decision track
253 is a vehicle used to designate the contents of a
35 circumscribed area 1201.

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Communication with a client can be directed towards an interest demonstrated by a client by analyzing actions taken by a client on a web site, or determined from data stored in a client profile database, as discussed earlier. By way of example, if a client answers an online offer for sale, that offer for sale may not be subsequently presented to that client. Instead perhaps a follow up offer may be made. Similarly, if a client shows interest in a product line, additional items relating to the client's interest may be presented to that client either by showing additional items on a screen the client views, such as a custom Inet-site screen, or sending the information to the client via e-mail, fax, mail or other suitable medium. These paths of interaction are termed decision tracks.

An Inet-site screen 251 is contacted by a client via a network access device 234-236. Inet-sites may be located for example on Internet or Intranet networks. An example of an access device is a client computer 231-233. Use of an access device such as a computer allows a contact to remain anonymous. If a client is anonymous, a client ID 310 is created based on the IP address, or a cookie downloaded to the client's access device. During an interaction between a client and an Inet screen, an anonymous client may be queried for identification. Once identified, the profile created on initial contact is assigned to the newly identified entity, and may be transferred to a table dedicated to known entities or leads. If an anonymous contact is not converted to a known entity, the profile can still be databased according to the created ID and tracked for future contacts. If the contact remains anonymous and dormant, the anonymous profile may be pruned from the database after a predetermined time lapse follows a last contact.

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Processing work can be divided into tracks of work that may be referred to as decision tracks. Each decision track 253 comprises a series of at least one condition that is to be tested by records of a database.

5 The structure of a decision track 253 is described below (Table 1). The decision track 253 definition describes the top level of a decision track. The decision track 253 step definition describes the structure of one of the individual steps that are interconnected to form a
10 complete decision track.

Table 1

Field	Description
Description	This is a user-friendly description of the decision track.
15 Decision Track ID	This is a unique code that is assigned to each decision track. It provides a simple mechanism to quickly identify a particular track. A tag is usually human readable so that users may refer to it in other conversations to refer to a specific message thread. The tag may be inserted into the collateral that is sent out to the client.
Local Variables	These are allocated when the decision track is started for a contact and used to provide mechanisms for tracking state between nodes across time. They can be used to implement simple looping constructs or sophisticated branching algorithms.
Conditions	If a condition is valued true, then the corresponding actions are taken.
Actions	Actions include setting variables, writing records, and sending collateral to the associated contact. Actions can also include advancing to other states of a decision track.
20 Target List	This is a query that defines which contacts are to be assigned to the decision track. These queries can be executed continuously to allow including new contacts that meet the criteria defined.

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Events/Queries	Events may be time of day and date timer expiration, database queries or local variable values. Multiple Events/Queries may be interconnected with boolean ANDs and ORs to form logical expressions. The
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As conditions of the decision track 253 are evaluated 610 and met with a true result 620, a predetermined action may be taken 630 in response to a condition met. If a condition is not met, then no action corresponding with that condition is executed. Appropriate action may take place on-line, such as presenting a collateral on a web site screen during a client's next visit, or off-line, such as mailing a hardcopy brochure via standard mail services, or fax. In addition, actions are sequenced so as to proceed in a desired order, as illustrated in Table 2 below.

Table 2

Decision Track		
Condition 1	If Condition is Met Then	Action 1
Condition 2	If Condition is Met Then	Action 2
Condition 3	If Condition is Met Then	Action 3
Condition 4	If Condition is Met Then	Action 4
Condition 5	If Condition is Met Then	Action 5

In one embodiment a series of records is tested against a selected condition. As each record is tested, if it meets the criteria of a condition, then a corresponding action may be executed. In another embodiment, multiple conditions are tested against a selected record, with corresponding actions being executed thereafter if the criteria of the conditions are met. A user may establish and modify test conditions at any time.

In still another embodiment decision tracks are combined with a network tracking system. In this case, decision tracks are designed to test conditions against data gathered and stored in a contact profile database. For

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example information can be gathered from an Inet Interface screen 1110 into database records. Data comprising a database such as the contact profile database 252 may be updated in real time, increasing the
5 responsiveness of the decision track. A query of database records 1120 can test conditions set by a user. Predetermined actions set by a user can be performed for those records meeting a condition 1130. With real time interaction, the effectiveness of a particular decision
10 track 253 can be analyzed at any point in time, as the feedback can be immediate.

In addition a user may modify a decision track 253 in response to data gathered in real time. Conditions and corresponding actions comprising a decision track 253
15 can be created and modified by a user. For example, if a particular subject matter present on an Inet site is attracting a high number of contacts, a user may immediately tailor a set of conditions to appropriately respond to those contacts.

20 Responses can be accomplished in real time, or in a time sequence relative to an event. For example a preferred embodiment will modify an Inet site screen 251 in real time and send collateral in a sequence at predetermined time intervals triggered by an event. For
25 example, twenty-four hours following a desired transaction such as a sale can be defined as an event. This invention can automatically send a follow up message, and invite more interaction when that twenty four hour event has taken place. Sequence timing can be
30 in response for example to a profile that indicates that a client tends to sign on-line during particular hours of the day. The sequence may be timed to correspond with a client during those hours that the client is signed on-line.

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Decision tracks 253 and the criteria for each step of a decision track 253 can be created and manipulated via a user interface 1300. A preferred interface utilizes a graphical representation 1310 for each step of
5 a decision track 253 as it is created. The graphical representation facilitates accurate processing of the data and ease of use. Another method for creating decisions tracks would include a written language statement defining criteria for each decision.

10 Different flows can result from both internal and external triggers to a decision track 253 system. Decision tracks may test for different trigger events as a condition to be met before taking an action. Trigger events may be time-based single events, time-based
15 recurring events or external input and query result events. External triggers include e-mail to accounts monitored by a server and Inet input. Internal triggers can include events that are generated as a result of a scheduling database that can indicate tasks that have
20 transpired.

In addition an indicator may be made part of a database to store actions taken during execution of a decision track. Such an indicator can mark a contact record that achieves a particular result. A decision
25 track 253 may then determine if it is desirable to continue executing a decision track 253 for a marked record.

Many methods are well known for marking database records. One method includes creation of a "yes/no"
30 field that toggles between 1 and 0 to indicate a given state. Another known method of marking is to associate an array of variables with a given set of values. Values may indicate if a desired result has been achieved for a plurality of record states.

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Actions designated by a decision track 253 may include one time calendar based mailings, mailings driven on responses to purchases, or mailing based on elapsed time without purchases. As activities are performed on 5 contacts in relation to processing decision tracks, a client's audit trail is updated and used to maintain the current state of individual decision tracks. The audit trail can also be used for error recovery in the case of system failures, thereby facilitating faultless restart.

10 Various processing functions used to implement this invention are typically performed without user intervention and can sometimes be referred to as back office functions. A server 211-213 implements back office logic to coordinate various client components. A 15 server can also implement tasks not requiring user intervention such as e-mail routing and performance of unattended, previously scheduled activities. It is preferred for a server to have an instrumented interface that can display current status information made 20 available by an administration module.

A front end is the primary front end seen by a user. In a preferred embodiment, user interface is constructed with a list of icons representing various available modules on one side of a screen with module 25 specific information display on the opposite side of the screen.

Reports for local viewing as well as formal reporting can be supported. Reports may be saved, printed, or forwarded via e-mail. The reports include 30 various detail reports and summary reports of campaign, lead and contact information.

A console log may display the current output of activities. All logged activities can be time stamped. The log may be cleared or saved to disk. A log can 35 include entries when users log in and out, when a system

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is started, when server-to-server synchronization is performed and when various routing and tracking events occur. The amount of detail included in a log is adjustable. The age of information in a log is also
5 configurable.

This invention is designed to utilize a commercially available database engine 910. Many such database engines are commercially available and include for instance, Oracle™, Sybase™, Informix™ and Microsoft
10 SQL™ servers. Database tables used by a server of this invention may be administratively customized to integrate with an existing database structure. A create database utility, available in a preferred embodiment, automatically creates the tables required by a decision
15 track. In addition, although internal databases such as a contact profile database 252 are preferred, queries may be processed against external Structured Query Language (SQL) databases.

Several configurations using combinations of
20 Windows NT™ servers and UNIX™ servers to support Inet services, database servers 214 and a server 214 storing decision tracks 253, can be detailed. The following are presented as examples only and should not limit the scope of this invention.

25 As an example, a small office configuration illustrates a configuration supporting this invention (Fig. 9), with Inet, Database and Decision Track Server functions located on a single Windows NT™ system 911. Other various front-end components, such as those
30 requiring customer interfaces, can run on Windows 95™ and Windows NT™ systems.

A Windows NT™ configuration may also use multiple Windows NT™ systems to support the various service components. A different Windows NT™ system may be used
35 for Inet services, another system for a database server

- 25 -

and still another system for a decision track server. Various front-end components can run on Windows 95 and Windows NT™ systems.

A UNIX™-Based Database configuration may be
5 similar to a Windows NT™ configuration except that the database server may be implemented using a Solaris™ based Oracle™ server. (Fig.10)

Inbound e-mail to accounts monitored by a server can be parsed 710 for both explicit requests (such as
10 subscribe/unsubscribe requests) and implicit requests whose actions are determined through loose parsing of the requests. Parsing can be used to provide automatic response 720 generation to product information or technical support queries.

15 Bounced mail messages returned from an invalid address can be automatically processed and routed by an e-mail parser. If a destination address is in a contact profile database, a bounce counter can be incremented. If a counter reaches a system-defined limit, the
20 corresponding contact record can be flagged as having an invalid e-mail address and future mail messages will not be delivered to that contact. In addition, Inet scripts can prompt a client with an invalid e-mail address when they next contact the site and request entry of a valid
25 e-mail address. E-mail addresses may be verified to the extent possible. A primary verification method can be to ensure that the domain name provided is reachable.

Duplicate records in a contact profile database
252 can be eliminated based on e-mail address. Also,
30 standard de-duplicating algorithms to locate and eliminate or combine duplicate contact information may be used. User interaction on questionable duplicates is preferable.

When for example an e-mail message is received,
35 general conditions may be evaluated. Conditions include

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specific words in the recipient's address, the sender's address, the subject, the body. Conditions are then matched against a sender's address in the contact database. If a match is found, appropriate actions may
5 be taken, such as unsubscribe a user from a mail list, add a user to a mail list, send a collateral piece to a user, or forward a message to an account.

A preferred embodiment of this invention can also use multiple servers concurrently within a peer group to
10 implement load balancing and fault tolerance. Load balancing and fault tolerance can be achieved by many known methods, the preferred method comprises claiming ownership of decision tracks and allocating work base on such ownership.

15 A synchronization function is also preferred to ensure full replication across multiple servers. Each remote server may maintain a complete copy locally of various databases used by a decision track 253 application. Conflicts in synchronization can be
20 resolved by human interaction. Synchronization operations may be configured to operate continuously or periodically. Synchronization may be configured by establishing partnerships between cooperating servers. A server will attempt to synchronize its databases with
25 other servers in a partner list. In this way, data synchronization may be tailored to the amount of communications bandwidth available between any given set of servers.

It is also preferred to implement load balancing
30 and fault tolerance across several servers. Methods for load balancing and fault tolerance are well known and add to the reliability and responsiveness of a network system. A preferred embodiment utilizes a system of load balancing that divides work into tracks such as decision
35 tracks and allows individual servers to claim ownership

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of a particular track. After some initial work an owner server may then allocate blocks of work to other servers that may comprise a peer group of servers. Division and allocation of the work can provide load balancing. A
5 plurality of servers comprising a peer group can provide fault tolerance.

The methods and mechanisms described here are not limited to any particular hardware or software configuration, or to any particular communications
10 modality, but rather they may find applicability in any communications or computer network environment. In a preferred embodiment of this invention, a software program on a computer readable medium is loaded on a server or a plurality of servers. The software program
15 comprises a front-end application that allows users to access a variety of the features designed to automate contact management on the Internet.

The techniques described here may be implemented in hardware or software, or a combination of the two.
20 Preferably, the techniques are implemented in computer programs executing one or more programmable computers that each includes a processor, a storage medium readable by the processor (including volatile and non-volatile memory and/or storage elements), and suitable input and
25 output devices. The programmable computers may be for example general-purpose computers or special-purpose, embedded systems. In either case, program code is applied to data entered with or received from an input device to perform the functions described and to generate
30 output information. The output information is applied to one or more output devices.

Each program is preferably implemented in a high level procedural or object-oriented programming language to communicate with a computer system. However, the
35 programs can be implemented in assembly or machine

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language, if desired. In any case, the language may be a compiled or interpreted language.

Each such computer program is preferably stored on a storage medium or device (e.g., CD-ROM, hard disk, 5 magnetic diskette, or memory chip) that is readable by a general or special purpose programmable computer for configuring and operating the computer when the storage medium or device is read by the computer to perform the procedures described. The system also may be implemented 10 as a computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer to operate in a specific and predefined manner.

The invention described has broad application to a 15 wide range of electronic interaction environments and a number of embodiments based upon the principles disclosed are possible. Those skilled in the art will recognize that the method and apparatus of the present invention has many applications, and that the present invention is 20 not limited to the representative examples disclosed herein. Moreover, the scope of the present invention covers conventionally known variations and modifications to the system components described herein.

What is claimed is:

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1. A system for gathering and disseminating information on a network comprising:

- a) a computer server;
 - b) an interface on the server for gathering and disseminating information;
 - c) a network access device enabling a client to electronically contact said computer server via the interface;
 - d) software implementing the following operations in said computer server:
 - e) gathering information relating to the electronic contact of said server by said client;
 - f) storing said gathered information in a client profile database;
 - g) referencing the client profile database to generate a customized communication; and
 - h) disseminating said customized communication to a client at a time relative to an event.
- The information gathering and dissemination system of claim 1 wherein the interface for disseminating information comprises an Inet-site page The information gathering and dissemination system of claim 1 wherein the customized communication disseminated is in response to a parsed e-mail message.

2. The information gathering and dissemination system of claim 1 wherein initial contact is anonymous and data tracked is subsequently associated with an identified contact.

3. The information gathering and dissemination system of claim 1 wherein the information gathered includes the lead source of the contact.

4. The information gathering and dissemination system of claim 1 wherein said customized communications are stored in a collateral library.

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5. The information gathering and dissemination system of claim 1 wherein the customized communication is sent sequenced in time from an event triggered according to logic defined in a decision track interacting with the client profile database.

6. A method for analyzing the effectiveness of an information dissemination campaign on a distributed network, the method comprising:

- a) distributing a communications collateral relating to a network interface screen;
- b) gathering information relating to responses to said collateral;
- c) storing the gathered information in a contact profile database;
- d) generating at least one report based on the databased data; and
- e) analyzing the report to determine the effectiveness of the campaign.

7. The method for analyzing the effectiveness of an information dissemination campaign on a distributed network of claim 6 wherein the distributed network is an Inet.

8. The method for analyzing the effectiveness of an information dissemination campaign on a distributed network of claim 6 wherein the communications collateral is an internet advertisement.

9. The method for analyzing the effectiveness of an information dissemination campaign on a distributed network of claim 6 wherein the information gathered comprises:

- a) a lead source of a click through;
- b) the time of day of the click through;
- c) the date of a click through; and
- d) the particular communications collateral responded to.

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10. The method for analyzing the effectiveness of an information dissemination campaign on a distributed network of claim 6 further comprising, modifying the advertisement in response to the analysis of the effectiveness of the campaign.

11. A method of conducting an Inet advertising campaign comprising:

- a) providing at least one advertisement on an Inet network on at least one host Inet site;
- 10 b) gathering information relating to a click through from said advertisement;
- c) storing the gathered information in a contact profile database; and
- d) compensating the Inet host site based on
- 15 the number click throughs lead sourced from the Inet host site.

12. The method of conducting an Inet advertising campaign of claim 11 wherein the host Inet site is further compensated for lead sourcing a contact that consummates a sale.

13. The method of conducting an Inet advertising campaign of claim 11 wherein the stored information comprises:

- a) the lead source of a click through;
- 25 b) the time of day of the click through;
- c) the date of a click through; and
- d) the particular ad responded to.

14. The method of conducting an Inet advertising campaign of claim 11 wherein a decision track modifies the advertisement and the host sites chosen after referencing information stored in the contact profile database.

15. An apparatus for conducting an Inet advertising campaign comprising:

- 35 a) a storage device;

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b) a processor connected to the storage device;

c) a contact profile database stored on the storage device; and

5 d) a software program stored on the storage device and controlling the processor; and the processor operative with the program to:

e) provide an advertisement on at least one host site on a distributed network;

10 f) gather information relating to a click through on said advertisement;

g) store the gathered information in records comprising contact profile database;

15 h) generate at least one report based on the databased data; and

i) analyze the report to determine the effectiveness of the campaign.

16. A programmed computer for analyzing the effectiveness of an information dissemination campaign on
20 a distributed network comprising:

a) a memory having at least one region for storing computer executable program code;

b) a processor for executing said program code stored in said memory;

25 c) a program code stored in said memory said program code implementing in said computer server:

d) distribute a communications collateral relating to a network site;

30 e) gather information relating to responses to said collateral;

f) store the gathered information in a contact profile database;

g) generate at least one report based on the databased data; and

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h) analyze the report to determine the effectiveness of the campaign.

17. A method for coordinating communications collateral for use in a contact tracking system, the
5 method comprising:

a) storing communications collateral in a database;

b) executing a decision track referencing a contact profile database;

10 c) customizing a collateral based on reference to the contact profile database; and

d) sending the customized collateral to a contact referenced in the contact profile database.

18. The method for coordinating communications
15 collateral for use in a contact tracking system of claim 17 wherein the communications collateral present a common theme in appearance.

19. The method for coordinating communications collateral for use in a contact tracking system of claim
20 17 wherein the database contains collateral of different types and equivalent content.

20. The method for coordinating communications collateral for use in a contact tracking system of claim
25 17 wherein the contact tracking system is a computer network contact tracking system.

21. The method for coordinating communications collateral for use in a contact tracking system of claim
17 wherein the database makes reference to communications collateral with a label signifying the content of the
30 collateral, and a type signifying the format of the collateral.

22. The method for coordinating communications collateral for use in a contact tracking system of claim
21 wherein the type of a collateral sent is determined by
35 reference to a contact profile.

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23. The method for coordinating communications collateral for use in a contact tracking system of claim 17 wherein the decision track is customizable by a user of the contact tracking system.

5 24. An apparatus for coordinating communications collateral for use in a contact tracking system, the apparatus comprising:

- a) a storage device;
- b) a processor connected to the storage
- 10 device;
- c) communications collateral stored in a database on the storage device;
- d) a contact profile database stored on the storage device;
- 15 e) a software program stored on the storage device and controlling the processor; and the processor operative with the program to:
- f) process a decision as defined in a decision track and referencing the contact profile
- 20 database; and
- g) send collateral stored in the communications collateral database to a contact as determined by the decisions processed.

25 25. The apparatus for coordinating communications collateral for use in a contact tracking system of claim 24 wherein the storage device and processor are contained in a computer.

30 26. The apparatus for coordinating communications collateral for use in a contact tracking system of claim 24 wherein the database references communications collateral with a label signifying the content of the collateral, and a type signifying the format of the collateral.

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27. A programmed computer server for providing coordinated communications collateral, the computer server comprising:

- 5 a) a memory having at least one region for storing computer executable program code;
- b) a processor for executing program code stored in said memory;
- c) a program code stored in said memory said program code implementing the following operations in
10 said computer server:
 - d) provide communications collateral;
 - e) store said communications collateral in a database;
 - f) provide a contact database;
 - 15 g) customize a collateral according to reference to said contact profile database; and
 - h) transmit the customized collateral to a contact.

28. A method for processing work on a computer,
20 the method comprising;

- a) dividing work into at least one decision track, said track comprising at least one condition to be tested and at least one corresponding action to execute if the condition is met;
- 25 b) providing a database comprising data records relating to contact of an Inet interface by a client;
- c) testing a data record against a condition of the decision track; and
- 30 d) executing an action corresponding to the condition tested if the condition tested is met by the data record.

29. The method of claim 28 wherein the condition is met by a trigger event.

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30. The method of claim one wherein the action taken is the transmission of a communication collateral to the client.

31. The method of claim 28 wherein the action
5 taken is a change in an interface content being viewed by the client.

32. The method of claim 28 wherein the database is updated in real time.

33. The method of claim 28 further comprising:
10 a) testing the data record against further conditions present in the decision track until all conditions have been tested; and
b) executing further actions corresponding to conditions that have been met by the data record.

15 34. The method of claim 28 further comprising:
a) defining a desired result to be accomplished by a decision track; and
b) flagging a record that achieves the desired result.

20 35. The method of claim 34 wherein a record having been flagged as achieving a desired result is bypassed from executing remaining conditions of a decision track.

25 36. An apparatus for performing data processing work comprising:

- a) a storage device;
- b) a processor connected to the storage device;
- c) a database comprising data records stored
30 on the storage device; and
- d) a software program stored on the storage device and controlling the processor; the processor operative with the program to:
 - i) divide the data processing work into at
35 least on decision track, said track comprising at least

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one condition to be tested and at least one corresponding action to execute if the condition is met;

ii) test a data record against a condition of the decision track; and

5 iii) execute an action corresponding to the condition tested if the condition tested is met by the data record.

37. The apparatus of claim 36 wherein the condition and corresponding action may be created and
10 modified and by a user.

38. The apparatus of claim 36 wherein the database provided is a contact profile database comprising information gathered relating to contact of an Inet site.

15 39. The apparatus of claim 36 wherein the processor is further operative with the program to:

a) test the data record against further conditions present in the decision track until all conditions have been tested; and

20 b) execute further actions corresponding to conditions that have been met by the data record.

40. A method of presenting dynamic network interface screens comprising, the method comprising:

a) providing a network interface screen with
25 at least one geographic area circumscribed;

b) providing multiple customized content for each circumscribed area;

c) executing at least one decision track, wherein the executed decision track tests conditions to
30 determine which customized content is to be displayed in each circumscribed geographic area;

d) displaying a customized content for each circumscribed geographic area of the network interface screen as determined by the execution of a corresponding
35 decision track.

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41. The method of claim 41 wherein an executed decision track references a contact profile database.

42. The method of claim 41 wherein the customized content for each circumscribed area is stored as
5 collateral in a collateral database.

43. An apparatus for presenting dynamic network interface screens, the apparatus comprising:

- a) a storage device;
- b) a processor connected to the storage
10 device;
- c) decision tracks stored on the storage device;
- d) a software program stored on the storage device and controlling the processor; and the processor
15 operative with the program to:
 - e) provide a network interface screen with at least one geographic area circumscribed;
 - f) provide multiple customized content for each circumscribed area;
 - 20 g) execute at least one decision track, wherein the executed decision track tests conditions to determine which customized content is to be displayed in each circumscribed geographic area;
 - h) displaying customized content for each
25 circumscribed geographic area of the network interface screen as determined by the execution of a corresponding decision track.

44. The apparatus of claim 44 wherein a decision track is selected according to information recorded
30 relating to a contact of an Inet site.

45. A programmed computer server for presenting dynamic network interface screens comprising:

- a) a memory having at least one region for storing computer executable program code;

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b) a processor for executing program code stored in said memory;

c) a program code stored in said memory said program code implementing in said computer server:

5 d) a means for providing a network interface screen with at least one geographic area circumscribed;

e) a means for providing multiple customized content for each circumscribed area;

10 f) a means for executing at least one decision track, wherein the executed decision track tests conditions to determine which customized content is to be displayed in each circumscribed geographic area; and

15 g) a means for displaying a customized content for each circumscribed geographic area of the network interface screen as determined by the execution of a corresponding decision track.

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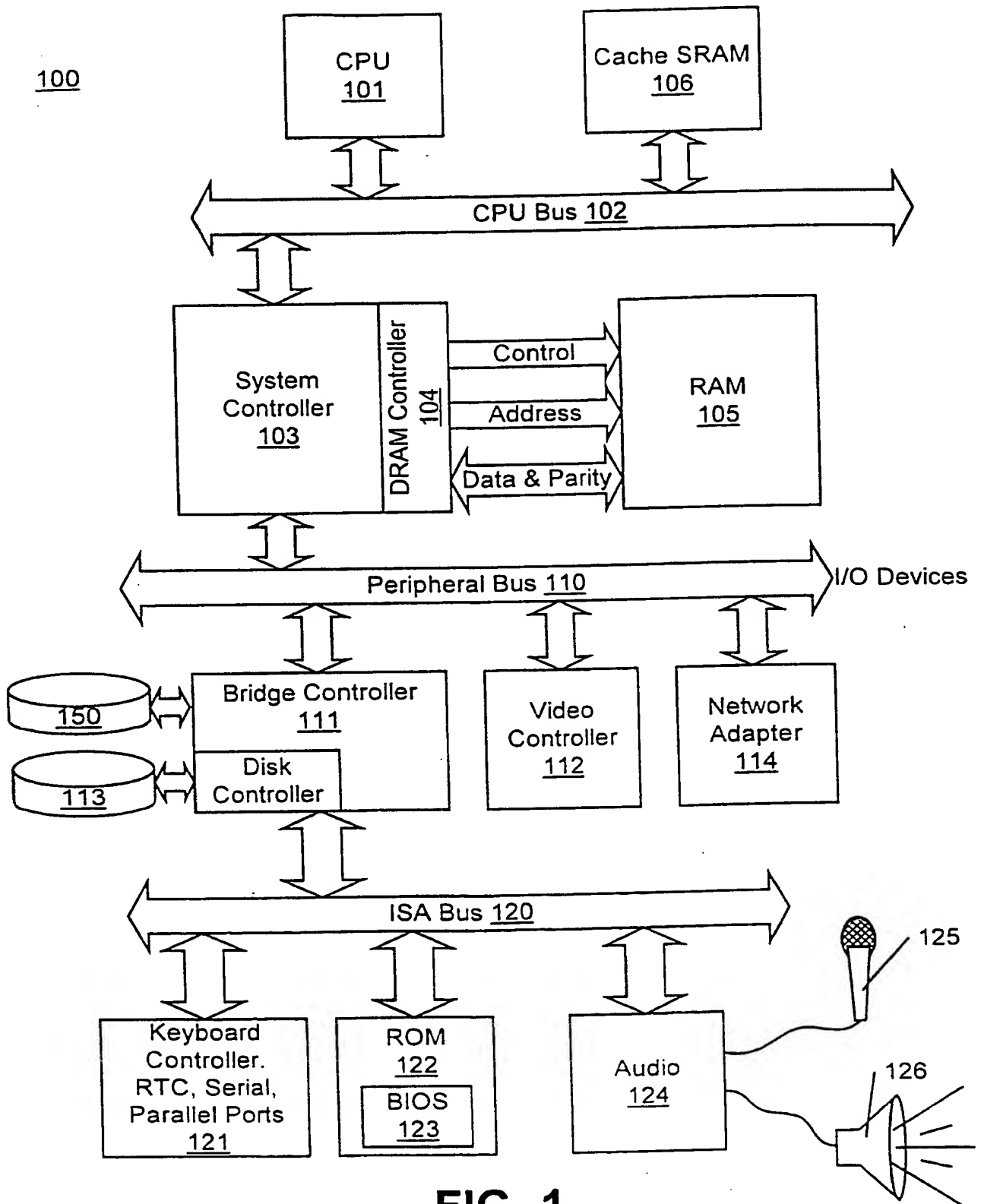
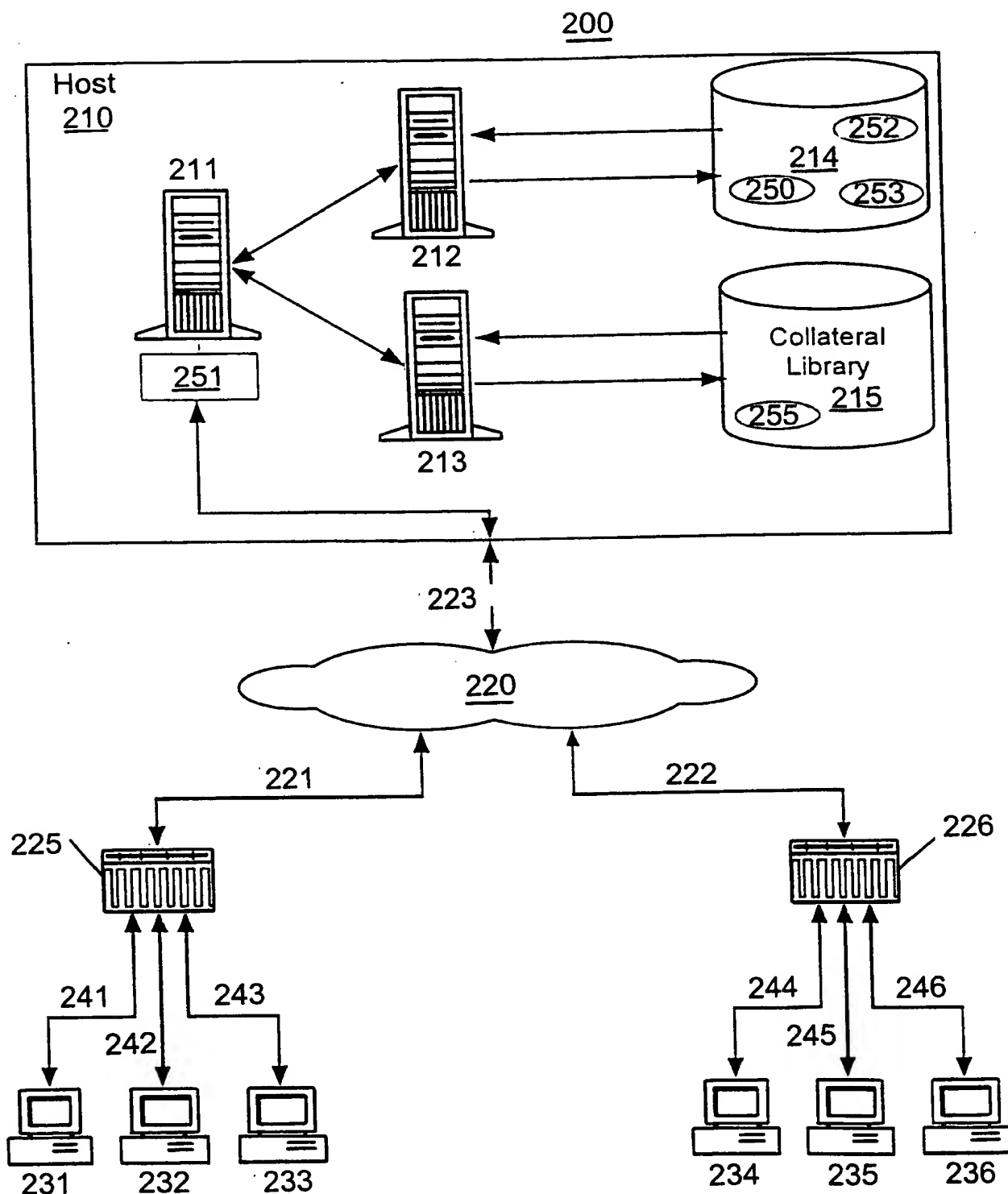


FIG. 1
(Prior Art)

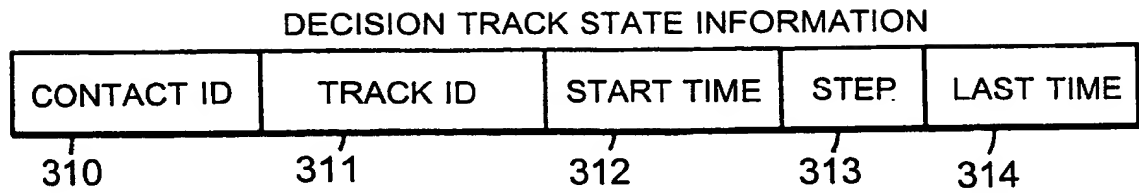
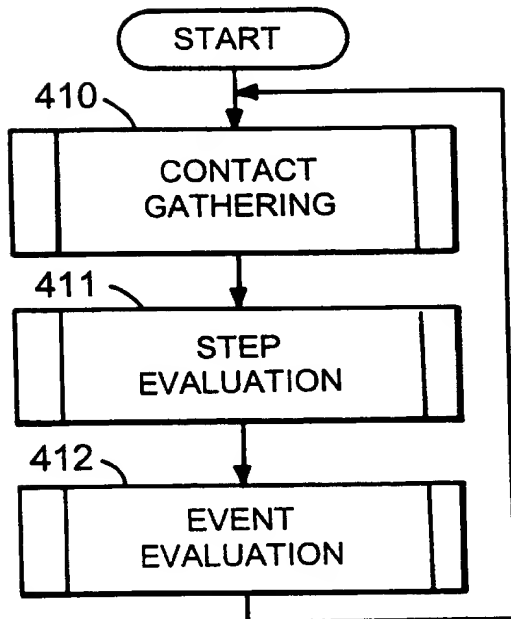
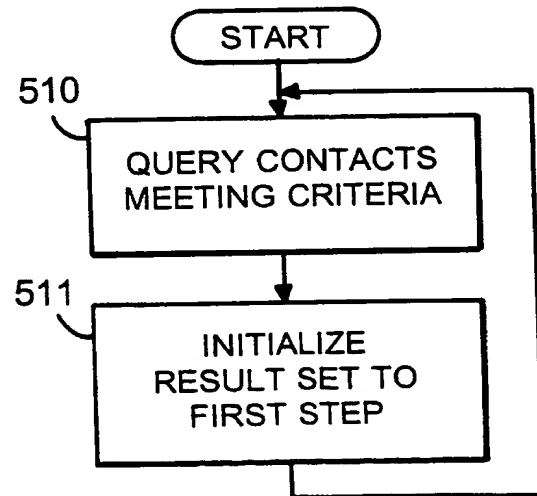
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**FIG. 2**

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**FIG. 3****FIG. 4****FIG. 5**

4/5

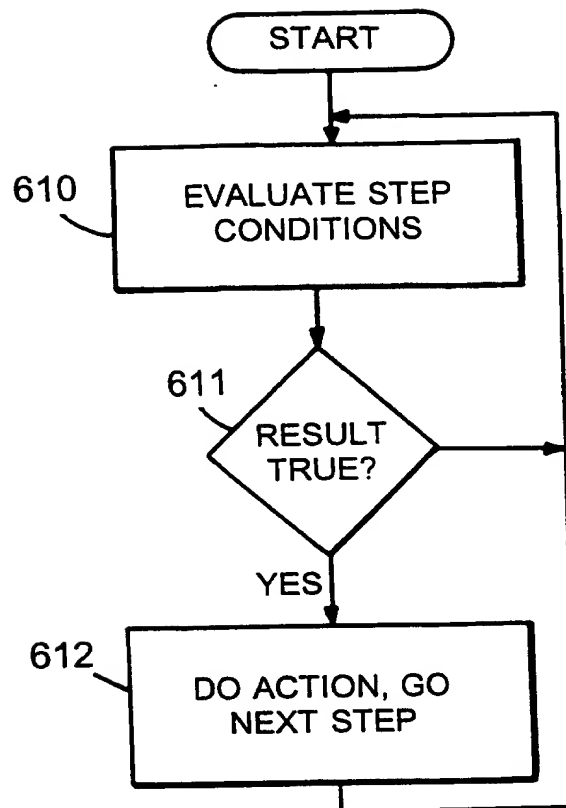


FIG. 6

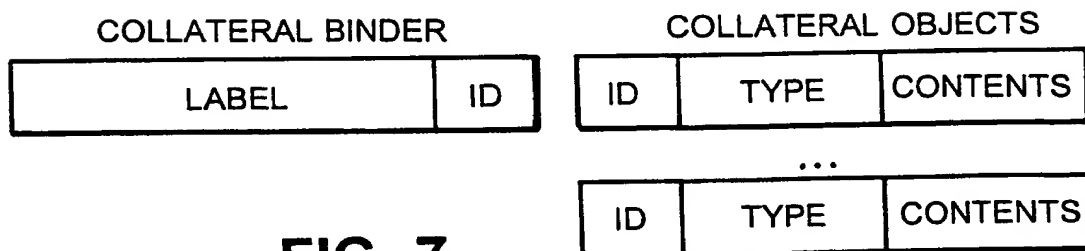


FIG. 7

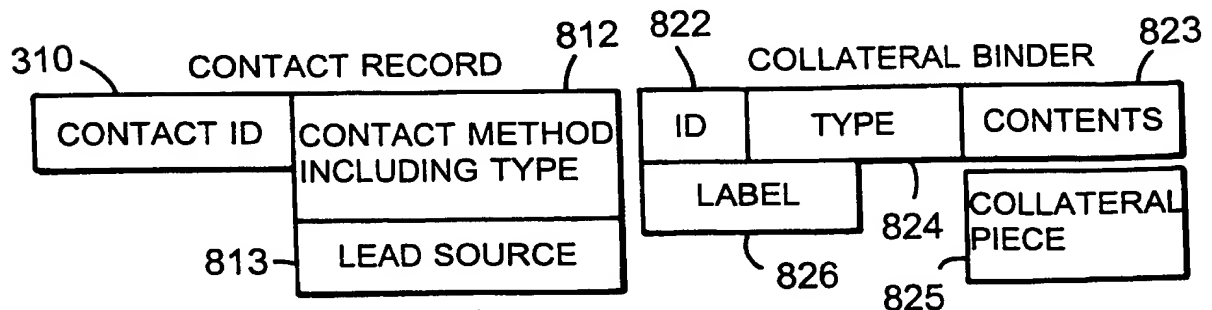
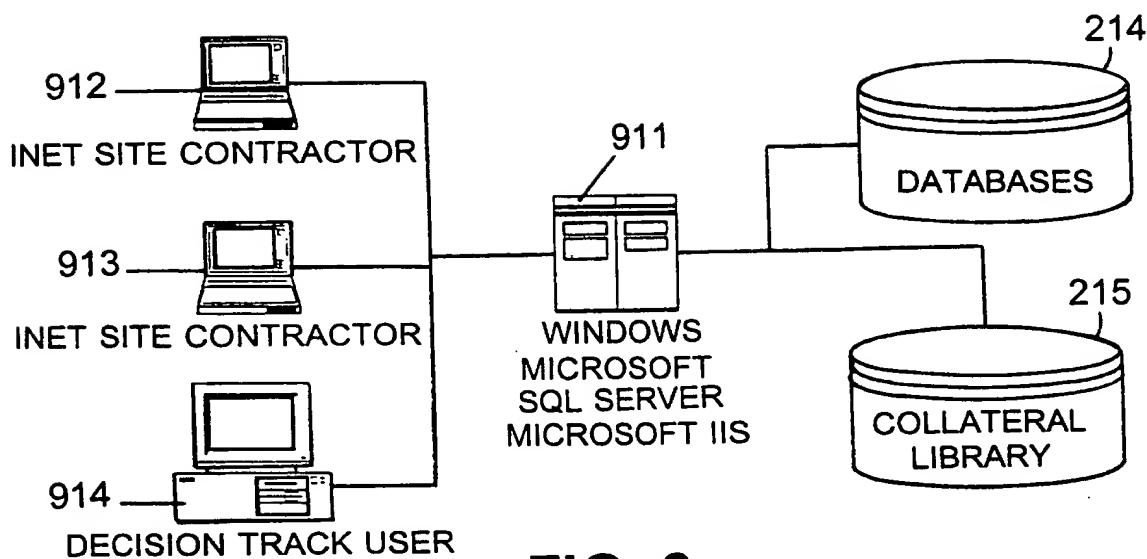
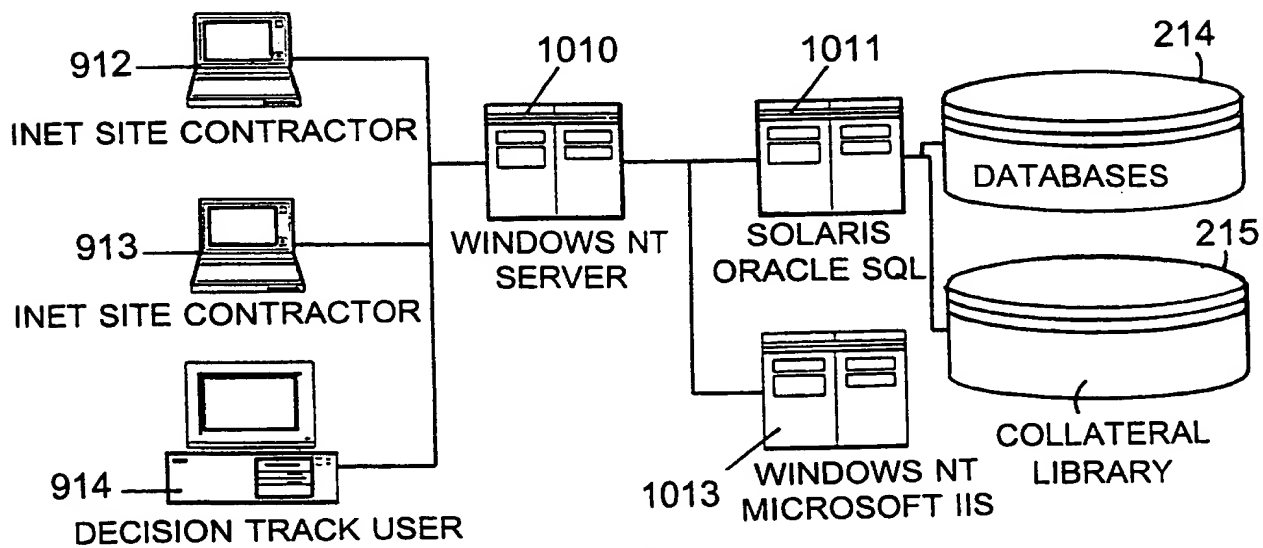


FIG. 8

5/5

**FIG. 9****FIG. 10**

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INTERNATIONAL SEARCH REPORT

Intern: al Application No
PCT/US 99/02155

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 34189 A (FLYCAST COMMUNICATIONS CORP) 6 August 1998 see page 1, line 8 - page 4, line 24 see page 11 - page 17; figure 3	1-5, 27-45
Y	see page 8, line 13 - page 9, line 16 ---	11-16
X	WO 97 26061 A (ANTWERP JOHN VAN ; GOLDBERG SHELDON FRANCIS (US)) 24 July 1997 see page 10, line 26 - page 11, line 21	6-10
Y	see page 59, line 11 - page 68, line 9; figures 6A, 6B, 7 ---	11-16
X	WO 97 22074 A (CYBERGOLD INC ; GOLDBERGER NATHANIEL (US); FITTS GARY (US)) 19 June 1997 see page 36 - page 40 see page 48; claim 33 ---	6-16
-/--		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

26 May 1999

Date of mailing of the international search report

10/06/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

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Bowler, A

INTERNATIONAL SEARCH REPORT

Intern .al Application No

PCT/US 99/02155

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